

# “Unsympathetic Users”: An Ethnoarchaeological Examination of Inuit Responses to the Changing Nature of the Built Environment

PETER C. DAWSON<sup>1</sup>

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**ABSTRACT.** Recent trends in modern architectural theory stress the dynamic relationship that exists between culture and the built environment. Such theories hold that because different cultures are characterized by distinctive types of economic, social, and ideological relationships, they require different forms of spatial order to sustain them. Through the adoption of such a perspective, this paper examines the effects of Euro-Canadian prefabricated housing on modern Inuit groups in the central and eastern Canadian Arctic. Preliminary results suggest that the “alien” spatial environments of the southern-style prefabricated house may have contributed to increasing gender asymmetry, a transformation of social relations through the delayed resolution of interpersonal conflicts, confusion over how, when, and where to conduct various household activities, and a loss of cultural identity among contemporary Inuit.

**Key words:** human spatial behaviour, government housing, Inuit, gender, acculturation, northern communities

**RÉSUMÉ.** Les tendances récentes dans la théorie de l'architecture moderne insistent sur le rapport dynamique existant entre la culture et le cadre bâti. De telles théories soutiennent que, vu que différentes cultures se caractérisent par des types distincts de rapports économiques, sociaux et idéologiques, elles ont besoin pour se maintenir de différentes formes d'aménagement des volumes et des espaces. En adoptant une telle perspective, cet article examine les effets des habitations eurocanadiennes préfabriquées, sur les groupes inuits modernes du centre et de l'est de l'Arctique canadien. Les résultats préliminaires suggèrent que les aménagements «étrangers» des volumes et des espaces des maisons préfabriquées conçues dans le sud pourraient avoir contribué à une augmentation de l'asymétrie entre les sexes, à une transformation des rapports sociaux par la résolution tardive des conflits interpersonnels, à une certaine confusion concernant l'exécution des diverses activités au foyer (comment, quand et où se déroulent-elles), et à une perte d'identité culturelle chez les Inuit contemporains.

**Mots clés:** comportement spatial humain, habitation fournie par l'État, Inuit, genre, acculturation, communautés nordiques

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## INTRODUCTION

Modern Inuit are the cultural and biological descendants of the Thule, a prehistoric culture that has been defined archaeologically throughout parts of Greenland, Alaska, and the Canadian Arctic. While Thule groups after A.D. 1400 appear to have hunted predominantly smaller marine mammals, many Neoeskimo archaeologists have viewed the early phase of Thule culture as structured largely around the open water hunting of bowhead whales (Savelle, 1987; Savelle and McCartney, 1991). During the early (Classic) and later (Modified) phases of Thule culture, four types of traditional habitation structures were used: the semisubterranean winter house, the *qarmat* or autumn house, the sealskin tent, and the snow house (McGhee, 1968). Following the Second World War, Inuit groups were encouraged by the Canadian government to abandon their mobile lifeway and settle in communities scattered throughout the North. Government administrators justified their actions by arguing that settlement nucleation facilitated the provision of government,

health, and educational services to Inuit, as well as conveniently asserting Canadian sovereignty in the Arctic (Duffy, 1988; Purich, 1992). With the increasing migration of Inuit to settlements, and the subsequent implementation of crash housing programmes in the 1950s and 1960s, traditional Inuit dwellings were soon abandoned in favour of Euro-Canadian government houses.

Many anthropologists and archaeologists have traditionally treated habitation structures as “artifacts” rather than as containers of space. All too often, such stylistic elements as outward and inward appearance, size, shape, and construction technique have been emphasized over the function a particular structure serves within a given culture (i.e., home, hospital, prison). In actuality, according to Hillier and Hanson (1984), it is the ordering of space within a structure that defines the purpose of a building, not its physical reality or outer shell. It is true that all artifacts, regardless of their function, assemble various attributes into an object with a physical form. However, only habitation structures contain and arrange a volume of space into a specific pattern. This is

<sup>1</sup> Department of Archaeology, The University of Calgary, 2500 University Drive N.W., Calgary, Alberta T2N 1N4, Canada  
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what serves to distinguish buildings from other artifacts, and it is within this spatial patterning that they suggest social meaning resides.

Recent trends in modern architectural theory emphasize the dynamic interaction that exists between culture and the built environment. Hillier and Hanson (1984), for example, have suggested that within any settlement or dwelling, the arrangement of space generates and modulates a system of physical encounters among inhabitants, and between inhabitants and strangers. It is through such physical encounters that people negotiate and renegotiate their economic, social, and ideological relationships. These ideas have a number of important implications for the study of culture change. First, if different cultures are characterized by different types of economic, social, and ideological relations, then they should require different forms of spatial order to sustain them. This would imply that cultures may "map" space in ways that are ethnically specific. Second, if the economic, social, and ideological relations that characterize a society change, then it follows that new spatial orders must be introduced in order to accommodate these changes. The archaeological and ethnographic records are replete with examples of changing technologies, economies, social formations, and belief systems generating new and innovative spatial arrangements. Among the Navajo, for example, Jett and Spencer (1981:215) explain that the replacement of the traditional conical forked-pole hogan with vertical-walled, rectilinear and hexagonal hogans, was spurred by the need for greater "roominess." This desire for built environments of different sizes and shapes was generated by increasing family sizes, the use of modern furnishings, the adoption of wage labour, and a shift to a more sedentary life style by the Navajo during the 1940s and 1950s.

If, as Hillier and Hanson (1984) maintain, people do map" their relations in space, and if cultural groups characterized by differing sets of economic, social, and ideological relations organize space in ethnically specific ways, then it is possible that the "alien" spatial environments of Euro-Canadian prefabricated housing may have had some effect on the interpersonal relations of eastern arctic Inuit. Gutman (1976) has suggested that efforts to transform any built environment often meet with initial resistance. Under such conditions, Gutman (1976:48) asserts that people will exhibit an almost overwhelming capacity to either "return the built environment to a familiar form, or reorganize it in a manner that defeats the goals of the designer." Architects frequently refer to such individuals as "unsympathetic users" (Gutman, 1976:38).

This paper attempts to develop and implement a method to address the following question: Have the societal relations of contemporary Inuit been affected by the alien spatial arrangements of the Euro-Canadian prefabricated house? And if so, in what way? In the pilot study presented here, I utilize graph theory as an analytical tool for the comparison of social and spatial patterning in both traditional Inuit and Euro-Canadian houses. Preliminary results are used to formulate the hypothesis that Euro-Canadian housing in northern communities has

contributed to increasing gender asymmetry, and the modification of interpersonal relationships through delayed conflict resolution. Future ethnoarchaeological fieldwork will be used to evaluate this hypothesis, as well as to examine the ways in which modern Inuit have attempted to modify the built environment to suit their own needs. Consequently, this paper is, in essence, a proposal to study changes in Inuit spatial organization through the quantitative analysis of pre- and post-contact architecture and the direct observation of modern Inuit households in operation.

## NEOESKIMO ECONOMIES

It would appear, although this is questioned by Freeman (1979), that whaling was an important economic focus in the North American Arctic during the Early and Classic phases of Thule culture (A.D. 1000–1400). As Thule groups moved farther and farther into the eastern Arctic, the availability of driftwood decreased dramatically, and whale bone became an increasingly important source of raw material in the construction of winter dwellings. McCartney (1980:527), for example, states that "no other Arctic animal matched the bowhead's potential contribution to food, fuel, tool and weapon materials, household implements, transportation, and shelter." While pinnipeds and other cetacean species were also exploited by Classic Thule groups, bowhead whales most likely assumed primary economic importance because they often occurred in aggregations, slept near the surface, could be easily approached because of their timid nature, had a tendency to float when killed, swam at speeds that were well within the range of kayak and umiak paddlers, and were excellent sources for construction materials (McCartney, 1980; Maxwell, 1985). In addition, the average adult bowhead would have supplied prehistoric whalers with approximately 15 000 kg of meat and muktuk, as well as 9000 kg of blubber for cooking, light, and heating (Maxwell, 1985).

With the advent of the Neo-Boreal climatic episode between A.D. 1400 and 1600, a general cooling of annual temperatures generated ice conditions that precluded open-water whale hunting in many areas of the eastern and central Arctic (McGhee, 1968; Schledermann, 1976a). In addition to constraining the seasonal movements of bowhead whales, the increasing size of drift-ice fields would have made hunting from umiaks and kayaks difficult or even dangerous. The onset of cooler temperatures also served to increase the stability and longevity of fast ice forming along the shorelines of many eastern and central Arctic localities. This created more favourable habitats for ringed seals, which assumed a new economic importance among Thule groups that had previously emphasized a whaling economy (Schledermann, 1976a; McGhee, 1983; Maxwell, 1985). Across the North American Arctic, Thule groups began to adapt to specific regional ecological conditions, and this eventually led to the ethnogenesis of such historically known groups as the Copper Eskimo, Netsilingmiut, Aivilingmiut, Sadlermiut, Iglulingmiut, and Nugumiut (McGhee, 1974).

## NEOESKIMO HABITATION STRUCTURES

Neoeskimo archaeologists distinguish between four house forms used by Thule groups during the Classic phase. The semisubterranean house is perhaps the most familiar. Constructed from sod, stone, and whale bone, these structures were used primarily as winter dwellings during the Classic Thule period. While many of the winter dwellings constructed by Western Thule groups in Alaska and the Mackenzie Delta area were rectilinear in shape, eastern Arctic Thule habitations were frequently more ovate. There is little doubt that the use of whale bone in place of driftwood constrained the range of shapes these structures could take (Schledermann, 1976a). As Mathiassen (1928) explains, it is just as difficult to build a round house from driftwood as it is to build a square house from whale maxillae, mandibles, and ribs. Winters were spent in aggregated coastal communities comprised of such semisubterranean houses, each of which usually quartered a single nuclear family. While contemporaneity of winter dwellings is difficult to confirm at winter sites, McGhee (1976) and McCartney (1979) suggest that four to six houses is a reasonable estimate of community size.

A second habitation structure, the *qarmat*, is associated with transitional seasonal periods in which it was too warm to continue living in semisubterranean houses, yet too cool to move into skin tents (Mathiassen, 1928). *Qarmat* are perhaps the most enigmatic type of habitation used during the Classic Thule period. Historically, *qarmat* have been described as constructed from snow, or blocks of ice with a roof of caribou hide (Schledermann, 1976a). In addition, some investigators have reported *qarmat* as having been constructed on the ruins of previously occupied semisubterranean houses; these are partially below ground, but lack the characteristic cold trap entrance tunnel and sod roof of the winter dwelling (Schledermann, 1976a; Savelle, 1987).

As the short arctic summer approached and temperatures became warmer, *qarmat* were abandoned in favour of seal-skin tents. Among the Netsilik Eskimo, such tents were supported by a central pole, with the edges of the tent anchored by heavy rocks (Savelle, 1987). A line of flat stones was then laid down by the wife, delineating the sleeping area, separate from the kitchen and work space (Balicki, 1970).

The snow house may have been used infrequently by Classic Thule groups as a form of temporary shelter when travelling (Savelle, 1987). Since the locations of snow dwellings (commonly on the sea ice) and the material they are constructed from make them archaeologically unrecoverable, their use has been inferred by the recovery of snow knives in Classic Thule sites (Savelle, 1987). McGhee (1983) has suggested that these “snow knives” may, in fact, have functioned as flensing knives, thereby questioning the use of the snow house prior to the historic period. Maxwell (1985), however, has stated that the knives in question would be too dull to have been effective in sea mammal flensing, and has pointed to the existence of stylistic similarities between archaeological and ethnographic examples of snow knives.

McGhee (1968) has stated that no new type of habitation structure appeared during the transition from Classic Thule to Historic Inuit, just a change in emphasis of use among existing structures. Schledermann (1976a, 1976b) has documented this change among the four types of habitation structures mentioned earlier; the semisubterranean winter dwelling, the *qarmat*, the sealskin tent, and the snow house. According to Schledermann (1976a), as climatic conditions began to deteriorate, the *qarmat* gradually replaced the semisubterranean house as the primary form of winter dwelling. This may have reflected the need for greater mobility in light of a shift away from whaling and toward sealing (Schledermann, 1976a). The *qarmat* was, in turn, supplanted by the snow house complex at about A.D. 1500 (Schledermann, 1976a; Savelle, 1987). Associated with this switch in emphasis in winter dwelling type was the adoption of more communal living arrangements. The discovery of bilobed and clover-leaf-shaped semisubterranean dwellings in the Cumberland Sound region of Baffin Island and Northwestern Hudson Bay documents this trend archaeologically (Schledermann, 1975; McCartney, 1979).

## MODERN INUIT: ECONOMIC AND SOCIAL CHANGE

Commercial whaling, the fur trade, missions, and the desire to assert Canadian sovereignty in the Arctic have all contributed to the acculturation of Inuit people in the modern era. While incipient contacts between Inuit and European explorers predate the whaling period, the sustained presence of Euro-American whalers throughout the Arctic brought the first major transformations to traditional Inuit life (Purich, 1992). The establishment of whaling stations in areas like Cumberland Sound and Herschel Island served to disrupt the traditional seasonal rounds of many Inuit groups. At Iglulik, for example, late summer/early fall caribou hunting was abandoned so that people could remain on the coast to work for whalers and obtain rifles and other European goods (Purich, 1992).

After the collapse of the baleen market in Europe and North America in 1906, the Hudson Bay Company (HBC) began to increase its fur trading operations in the North. At the peak of the fur trade, the HBC was running over 100 posts in 80 locations, and by 1923, all Inuit in the Canadian North were living within travelling distance of a trading post (Purich, 1992). The white pelts of the arctic fox became the staple pelt of the fur trade, and this further contributed to the disruption of the traditional Inuit seasonal round. Purich (1992) notes that the demand for white fox pelts required that they be hunted in winter—a time traditionally devoted to sealing on the winter sea ice. With the onset of the Great Depression in the 1930s, the HBC encouraged many Inuit to relocate to potentially more profitable regions of the Arctic. In 1934, for example, the HBC moved 52 Inuit from various communities on Baffin Island to new settlements on Devon Island (Purich, 1992).

Following the end of the Second World War, the governments of Canada, Europe, and the United States began to

recognize the strategic military importance of the North American Arctic. Subsequently, many Inuit communities were developed around military bases and newly established administrative centres, where both permanent and seasonal sources of labour were frequently required (Vallee et al., 1984; Purich, 1992; Tester and Kulchyski, 1994). The Canadian government later recognized that making the Inuit citizens of Canada was a much more cost effective means of asserting a national presence in the Arctic. Consequently, other new Inuit communities were established in remote areas like Ellesmere Island and Cornwallis Island, and Inuit families were relocated yet again (Vallee et al., 1984; Purich, 1992; Tester and Kulchyski, 1994). The Canadian government has maintained that the Inuit were moved to such areas voluntarily—not to assert Canadian sovereignty, but because of impending food shortages, and the consequent fear that they would become welfare dependent (Purich, 1992; Tester and Kulchyski, 1994). In addition, it was felt that if Inuit were settled into these new communities, they could be provided with government, educational, and health services more efficiently. The extent to which this resettlement was voluntary is currently being debated by government officials and Inuit leaders (Tester and Kulchyski, 1994).

With an increased dependence on nontraditional technologies like the rifle and the snowmobile, many Inuit have found it necessary to engage in wage labour jobs. Purich (1992) estimates that it costs over \$10000 for an Inuk to actively hunt on a year-round basis. This has created an economic paradox for many Inuit; in order to hunt, an individual has to get a job, but if an individual has a job, he or she has less time to hunt. Furthermore, while the hunting and trapping of fur-bearing animals once provided many Inuit with a more or less dependable source of monetary income, such activities have recently fallen under attack from environmentalists and animal rights groups (Wenzel, 1991; Lynge, 1992; Young, 1992). Hence, it would appear that hunting and gathering and wage labour are two ends of an economic continuum in which modern Inuit fall somewhere in the middle.

#### HOUSING AND RENTAL PROGRAMS IN THE CANADIAN NORTH

In order to convince the Inuit (and the Canadian public) of the benefits of settled community life in the North, the Canadian government embarked on a number of crash programs to provide low-cost rental housing in the 1950s and 1960s. Many of these programs were undertaken without the input of northern aboriginal peoples, and the results often left much to be desired (Thomas and Thompson, 1972; Duffy, 1988). Early prefabricated houses were poorly designed for northern climates, lacking in sufficient cupboard and storage space, difficult to heat in winter, and often too small to accommodate growing Inuit families (Thompson, 1969; Glover, 1974a, 1974b; Vallee et al., 1984). Victor Allen, an Inuvialuk and resident of Inuvik, N.W.T., sums up the problems of the prefabricated house nicely:

So a lot of those people who are running great big positions in the government, they put us in a square shack with a big picture window. So there you are. You put up the stove really high. Everything steams up. The floor is cold like hell and you figure your quite happy there. The government then figures out you're a family man. So next year they give you a nice looking shack with tar paper walls with white trim and a stove. But there is not enough heat to keep the place thawed out. So in one part of the house you live; one part is cold storage. *You've been drawn away from your old ways of living* (my emphasis).

(Victor Allen, quoted in Glover, 1974b:54)

An increasing dependence on nontraditional dwellings has also created chronic housing shortages in many northern communities. As of 1990, the Northwest Territories needed approximately 3000 new housing units, even though the N.W.T. Housing Corporation could only afford to build 300 (Purich, 1992). Subsequently, poor housing conditions and overcrowding have contributed to increased occurrences of pulmonary diseases such as tuberculosis, pneumonia, and bronchitis, and much higher than average infant mortality rates (Purich, 1992; Vallee et al., 1984).

In addition to the physiological health problems outlined above, Zrudlo (1974) has outlined a number of psychological problems common among individuals who are forced to inhabit foreign spatial environments. Utilizing criteria developed by the Institute for Creative Studies in Washington for its studies of long-duration, manned space missions, he states that psychological problems like clinical depression, anxiety, and loss of self-identity can be grouped under three main categories: isolation, unfamiliarity, and poverty of stimulus. Isolation can occur when an inhabitant feels physically, socially, or culturally segregated from his or her familiar environment. An individual experiences unfamiliarity when there are insufficient similarities between the old and the new environment. As a result, the inhabitant is unable to establish a sense of identity in the new environment. A lack of sufficient stimulus within the new environment can also lead to boredom, melancholy, depression, and sometimes suicide (Zrudlo, 1974).

Many urban planners suggest that because modern dwellings do not reflect traditional cultural values of northern aboriginal "users," they are unable to accommodate, in an adequate way, the transition from a nomadic, unself-conscious culture to a settled, self-conscious way of life (Glover, 1974a: 117). This is because the prefabricated houses currently used in the North have been designed to sustain only one ethnic group—the Euro-Canadian southerner (Glover, 1974a). Even though government administrators have recognized the inadequacies of construction and internal design, many apparently remain reluctant to include Inuit in the planning of northern houses and settlements. In the early 1970s, for example, one official maintained that "the demand for buildings in the North is not large enough to warrant the development of new technologies in the Canadian South for solving the special building problems applicable only in the

North” (Karl Stairs, quoted in Glover, 1974b: 136). Thus, the title of an Indian and Northern Affairs report, “Eskimo Housing As Planned Culture Change” (Thomas and Thompson, 1972), explicitly defines the role that the prefabricated house may have inadvertently played in altering the economic, social, and ideological relations held among Inuit in the modern world.

### THE SOCIAL LOGIC OF SPATIAL ARRANGEMENTS

Hillier and Hanson (1984:200) state that “all social processes, whatever their abstract and conceptual nature, are realized in space.” Within any building, physical encounters between individuals provide a context for the negotiation, affirmation, and maintenance of economic, social, and ideological relationships necessary in the daily life of a society. Within this context, divisive relationships segregate people in space by reducing encounter rates between individuals, while more inclusive relationships integrate people in space by increasing encounter rates between individuals. To be sustained, different social formations require different rates and sequences of physical encounters among their constituents. Consequently, the arrangement and accessibility of space within any society can be seen as a direct reflection of its ethnicity (Hillier and Hanson, 1984).

The accessibility of any space within a building reveals how integrated or segregated it is relative to other spaces in the system and to the outside world. To quantify the differential accessibility of spaces within a habitation structure, Hillier and Hanson (1984) have devised a technique they refer to as “gamma analysis.” In gamma analysis, structures are depicted as justified accessibility graphs, where all spaces within the structure are lined up horizontally above the carrier space (point of entrance). The carrier space is formally defined as the domain of non-inhabitants which contains and surrounds the building. In contrast, dwellings exist as the domain of inhabitants, with every building—even an elementary single cell—identifying at least one inhabitant: a person with special access to, and control over, that particular bounded space (Hillier and Hanson, 1984). Justified accessibility graphs map the permeability of a building by representing paths through the building as lines connecting spaces. The spaces, in turn, are represented by closed circles. Figure 1 shows the floor plan of a Euro-Canadian prefabricated house (Fig. 1a, after Thompson, 1969) and two justified accessibility graphs drawn from the perspective of different rooms. Figure 1b is drawn from the perspective of the living room (LR) and Figure 1c is drawn from the viewpoint of the bedroom (BR). Note how the depth of the accessibility graph changes as it is redrawn from the perspective of different, functionally discrete spaces in the system. In this example, the living room occupies a much shallower position from the point of entrance than the bedroom, and is therefore a more integrated space. Conversely, as the bedroom is among the deepest spaces from the point of entrance, it is a more segregated space.

The quantification of spatial integration involves the use of an index of relative asymmetry (RA). In order to calculate RA, one must first construct justified accessibility graphs for each functionally discrete space (such as the living room or bedroom) in the dwelling. The mean depth (MD) of each functionally discrete space is then calculated by assigning every other space a depth value, based on how many spaces it is away from the original space. These values are summed and divided by the total number of spaces in the system ( $k$ ) less one (the original space). RA is then calculated using the following equation from Hillier and Hanson (1984:108):

$$RA = 2 \frac{(MD - 1)}{k - 2}$$

The resulting RA values vary between 0 and 1, with high RA values indicating low integration/high segregation and low RA values indicating high integration/low segregation. RA values can be calculated for any space, and provide an indication of how that space relates to every other space in the system. RA values calculated from the carrier space, for example, allow one to understand whether the inhabitants of a building integrate or segregate themselves from visitors in the outside world.

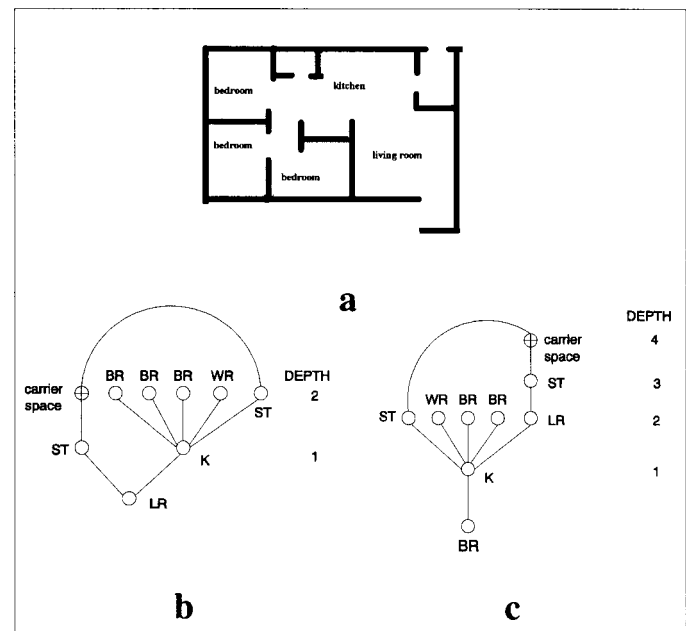


FIG. 1. A representative example of Inuit low-cost housing (after Thompson, 1969): a) floor plan; b) accessibility graph drawn from the perspective of the living room (LR); c) accessibility graph drawn from the perspective of the bedroom (BR).

### PROCEDURE FOR ANALYSIS

A sample of house plans from both traditional and nontraditional Inuit dwellings was selected for analysis. Traditional winter houses were chosen, rather than summer tents and *qarmat*, because winter houses were occupied

during periods of the year in which inclement weather would have required that the majority of daily activities be conducted indoors; thus, they may provide a more enduring picture of spatial organization in traditional Inuit households. Gamma analysis requires the use of high-quality floor plans with detailed descriptions of room/space functions. Traditional winter houses that met this criteria included a Ruin Island Phase winter dwelling from eastern Ellesmere Island (Fig. 2a) (McCullough, 1989:40), a Western Thule phase winter house from Jabbertown, Point Hope, Alaska (Fig. 2b) (Larsen and Rainey, 1948:171), and the floor plan of a typical Inuit snow house with dance hall, from an unspecified location in the central Canadian Arctic (Fig. 2c) (Whittaker, 1937:87). The non-traditional houses selected for comparison consisted of three representative examples of northern subsidized housing (Fig. 2d–f) (after Thompson, 1969). The floor plans of each dwelling type were drawn as justified accessibility graphs from the perspective of each

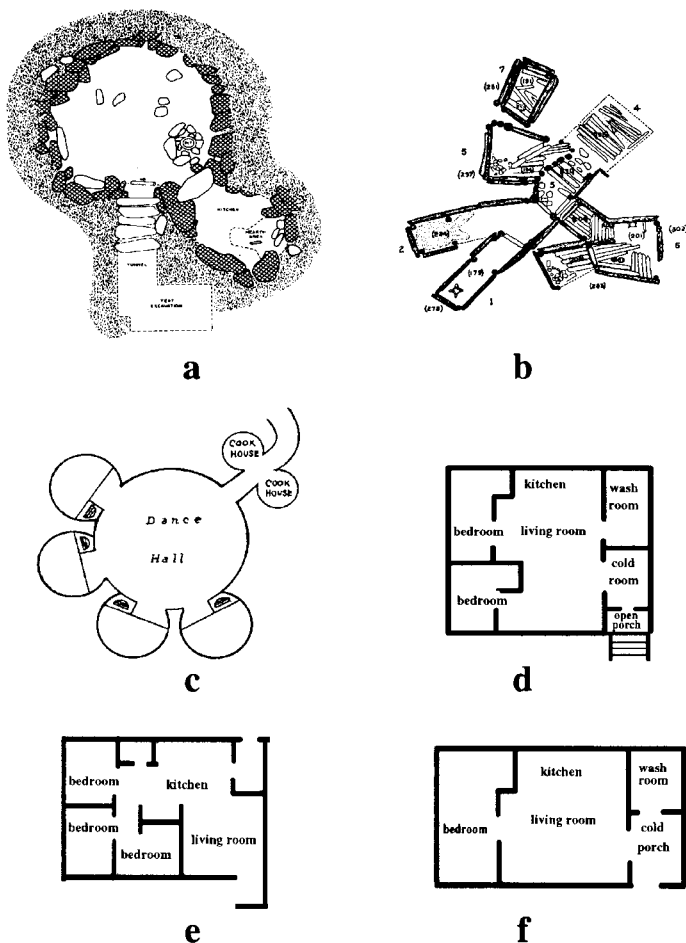


FIG. 2. Floor plans of traditional and modern Inuit dwellings: a) Ruin Island Phase winter dwelling from eastern Ellesmere Island (McCullough, 1989; courtesy of the Canadian Museum of Civilization); b) Western Thule Phase winter dwelling from Jabbertown, Point Hope, Alaska (Larsen and Rainey, 1948; courtesy of The American Museum of Natural History); c) typical Inuit snow house with dance hall (Whittaker, 1937; courtesy of AMS Publishing); d) two-bedroom Inuit rental house, Cape Dorset, N.W.T.; e) three-bedroom Inuit rental house, Cape Dorset, N.W.T.; f) one-bedroom Inuit rental house, Cape Dorset, N.W.T. (Fig. 2d–f after Thompson, 1969).

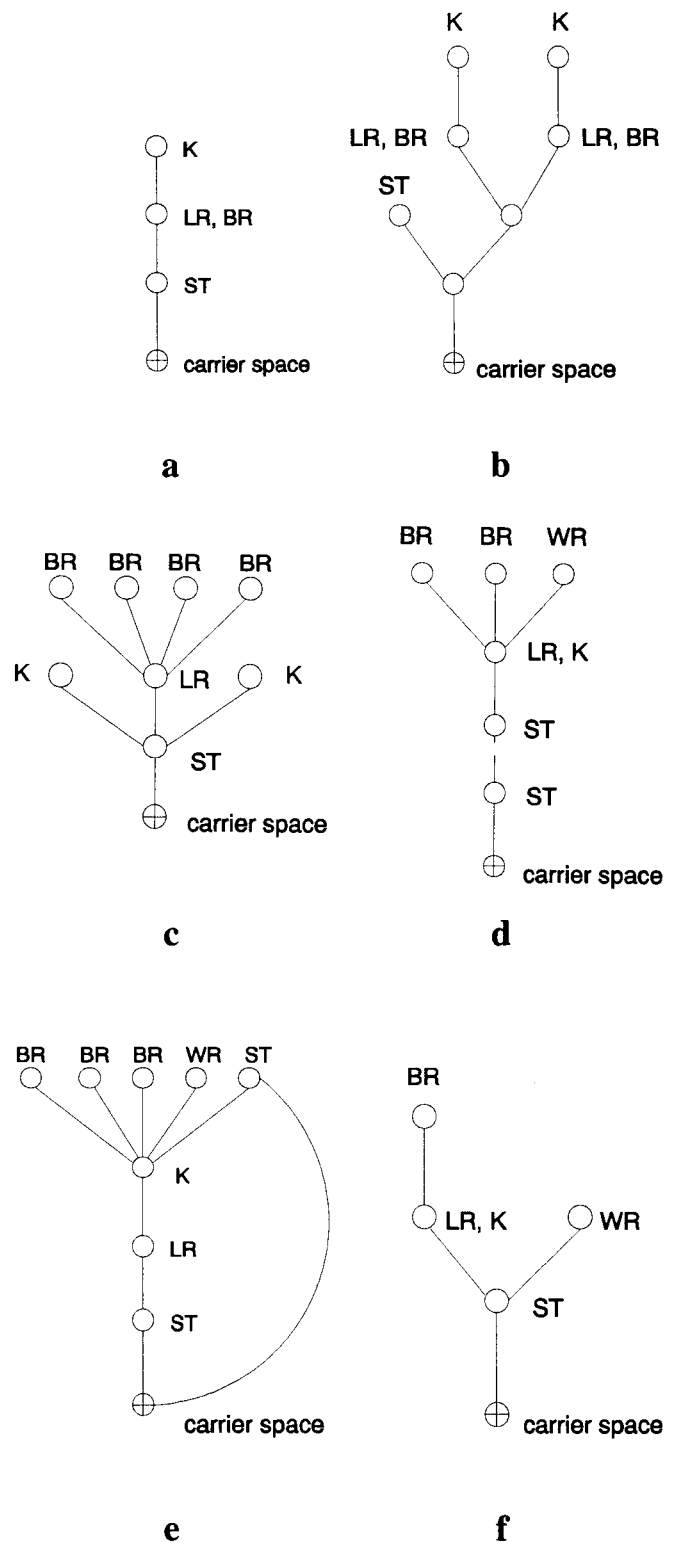


FIG. 3. Accessibility graphs for floor plans in Figure 2: a) Fig. 2a; b) Fig. 2b; c) Fig. 2c; d) Fig. 2d; e) Fig. 2e; f) Fig. 2f.

functionally discrete space in the system (Fig. 3a–f). Relative asymmetry (RA) values were calculated for the following functionally discrete spaces: storage area (ST) kitchen (K), living room/ communal space (LR), washroom (WR), bedroom/sleeping platform (BR). The RA values for each functionally discrete space were then plotted as a line graph (Fig. 4a–f). As mentioned previously, high RA values indicate segregated space, while low RA values indicate integrated space. The goal of this analysis is not to produce a statistically significant pattern, but to provide a general impression of the relative differences in spatial accessibility between traditional Inuit and Euro-Canadian housing.

## RESULTS AND DISCUSSION

When the points representing the RA value for each space are connected, one immediately notices that the shapes of the graphs generated by the non-traditional dwellings more closely resemble each other than those of the traditional Inuit/Eskimo dwellings, and vice versa (Fig. 4a–f). According to the basic premise of gamma analysis, the variations we see in the shapes of these graph lines reflect differences in the “inclusive” and “exclusive” qualities of the economic, social, and ideological relations unique to their intended inhabitants.

Comparisons of the RA line graphs for traditional and prefabricated houses reveal an interesting contrast in the degree to which the kitchen space (K) is segregated in the traditional versus prefabricated houses selected for analysis. In all of the prefabricated houses, the kitchen space is among the most integrated spaces in the system. Conversely, in the traditional Inuit dwellings selected for comparison, almost the reverse is true; the kitchen is among the most segregated or least accessible spaces within the system. These contrasting RA values for kitchen spaces seem to correlate generally with the changing nature of gender relations from Thule to modern Inuit groups.

### HOUSEHOLDS AND GENDER RELATIONS IN THULE AND MODERN INUIT SOCIETIES

In many traditional Inuit/Eskimo societies, women assisted in the construction of habitation structures, and were responsible for the arrangement of interior space. Giffen (1930) reports that the general care of the house among most traditional Inuit/Eskimo groups was the sole responsibility of the woman. Housekeeping included the care of all clothing, the cleaning and ventilation of the house, the clearing of snow from the roof or entrance passage, and the repair of the dwelling. Women were also exclusively in charge of maintaining the lamp, which was usually placed within the kitchen/ vestibule area. Since the lamp was crucial to heating, lighting, and cooking, it was the most important item of “furniture” in pre-contact and early contact Inuit/Eskimo society (Giffen, 1930). In addition, the preparation and apportioning of food within the nuclear family was commonly considered to be the

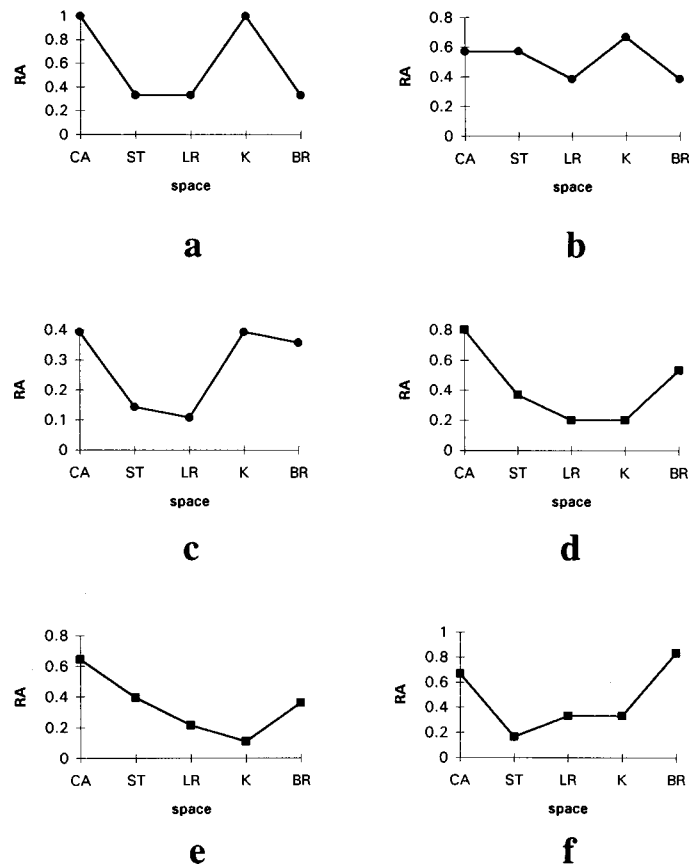


FIG. 4. RA graphs for floor plans in Figure 2: a) Fig. 2a; b) Fig. 2b; c) Fig. 2c; d) Fig. 2d; e) Fig. 2e; f) Fig. 2f.

responsibility of elder females. For example, among the Netsilik, any individual within the nuclear family could obtain a “snack” at any time, but only after gaining the informal permission of an elder female (Balicki, 1984). Likewise, among some Inuit groups, women also controlled access to the contents of food stores, and kept accurate track of how much food was available for consumption, as well as what should be eaten and when (Ackerman, 1990).

Within the ideational realm of Inuit society, the traditional house as a whole was also considered to be the domain of the female (Oosten, 1986). Oosten (1986) states that because males hunted game outside of the house, the domain of males was deemed to be the outside world. In contrast, since women gave birth to children inside the house, they possessed a strong symbolic association with the inside of the traditional dwelling. North Alaskan (Tikigaq) mythology also indicates that Inupiat semisubterranean houses, and the whale bone used to construct their entrance passages, were symbolically resonant of women. In the Inupiat myth of the Raven and the Whale, Raven flies into the mouth of a whale and finds a brightly lit iglu. Within the iglu, Raven is greeted by a young woman on a sleeping bench, tending a lamp (Lowenstein, 1993). In the Raven story, the whale is the iglu, and the young woman is the whale’s soul, thereby emphasizing the strong

association that exists between women, the traditional house, and the whale—the single most important source of cultural identity to Alaskan Inupiat (Lowenstein, 1993). The fact that Classic Thule winter dwellings were also constructed of whale bone suggests that they may have been imbued with similar meaning.

With the introduction of the prefabricated house, however, women's authority in the home (and especially in the kitchen) was usurped by males (Thompson, 1969). As males were the ones engaging in wage-labour, only males were in a position to buy or rent nontraditional homes. Hence, because men now "owned" these structures, the home no longer belonged to the woman. In defining the role played by Inuit women in the modern settlement, Thompson (1969) explains that:

... she has nothing to do with the building or furnishing the house; she is not responsible for buying food or any other articles in the house. Therefore, she does not feel greatly responsible for the house or its upkeep. (p. 20)

Government-sponsored adult education classes have also contributed to Inuit women's loss of self-esteem in the modern household. Thompson (1969) states that courses in housekeeping, offered by government officials, often caused a woman to lose face in the community. Since it is believed that the "wifely duties" of housework are supposed to have been learned prior to marriage, it was implied that a woman who attended such classes was a "poor wife" (Thompson, 1969:20). Furthermore, the women who did attend such classes often viewed them as opportunities for socializing, and as a diversion from their daily routines, rather than as a means of learning the skills necessary to maintain a modern house (Thompson, 1969). Once the authority of elder women in the home had been undermined, Thompson (1969:20) explains that young women began to assume the position of "drudges" in the modern Inuit household. Wives expected young women to do housework on their own, with no direction, and with very little help from anyone else in the family. Thus, it would appear that elder Inuit women, upon realizing their loss of status in both the nuclear family and community, took out their frustrations on less senior women. It is also likely that the modern prefabricated house, constructed using foreign materials, had all but lost its symbolic resonance and ritual importance in modern Inuit society. Concomitant with this loss would have been the disassociation of "woman" and "house" in Inuit ideology.

The kitchen had been the locus of control for female power in the traditional Inuit house. Hence, the integration of the kitchen space with other spaces in the modern prefabricated house may have contributed to the undermining of women's authority in contemporary Inuit society. In many traditional semisubterranean houses, the kitchen space existed as either a separate room off the main living space, or as a small vestibule or alcove, usually on the right or left side of the entrance tunnel. In both of these forms, the kitchen area constituted a discrete, bounded space to which unauthorized access could be monitored and regulated. While traditional

house forms in which the lamp stand/cooking area appear to be integrated into the main living space do exist, examples of Thule dwellings in areas such as Bathurst Island, N.W.T. (DeBlicquy site, Black Point site, and Cape Evans site) suggest that the two former patterns are more commonplace. In some cases, restricted access to raw materials (such as whale bone) or shorter periods of occupancy may explain why some houses lacked truly separate kitchen spaces. The practice of constructing separate cooking areas does seem to have been retained in many of the large, multi-family snow house complexes documented ethnohistorically (Mathiassen, 1928; Whittaker, 1937). In modern houses like Figure 2d–f, however, the kitchen is no longer a bounded space; as a result, unauthorized incursions cannot effectively be regulated. This undermines the authority of the primary inhabitant of that space, the wife or mother.

The patterns of spatial accessibility in traditional Inuit and contemporary Euro-Canadian prefabricated housing also differ in a second important way. The bedroom as a discrete, bounded space, as it appears in the Euro-Canadian house, is entirely absent from the traditional Inuit dwelling. In the traditional Inuit winter house, family members and visitors all slept within the confines of a single, unbounded space. However, with the introduction of separate bedrooms, family members could now effectively isolate themselves from each other, especially following episodes of social conflict. This fact suggests that the spatial patterning of the prefabricated house may have served to transform how members of an Inuit family related to one another. Within the context of a communal living arrangement, it is logically in everyone's best interests to resolve social conflicts between individuals as expeditiously as possible. Consequently, it is foreseeable that communal living arrangements would exert social pressure on individuals to resolve their differences promptly. Furthermore, the inability of individuals to sustain prolonged physical avoidance within a single communal household suggests that this would further contribute to the prompt resolution of social conflicts. With the introduction of the bedroom, however, individuals could now isolate themselves in space, thereby delaying the resolution of any interpersonal conflict indefinitely. Hence, the prolonging of disagreements between family members in contemporary Inuit households may have necessitated the creation and adoption of new ways of dealing with interpersonal conflict. It is also possible that the introduction of the bedroom provided some individuals with new opportunities to engage in covert, anti-social behaviours that would not be sanctioned by other members of the family, for example, substance abuse. As such behaviours emphasize individual self-interest and fulfilment at the expense of the larger social group, they could foreseeably contribute to the dissolution of a family unit.

To summarize, the accessibility patterns that characterize government housing appear to "map" the economic, social, and ideological relations of a different ethnic group, the Euro-Canadian or "Qallunaat." When such houses were introduced to Inuit/Eskimo groups in the 1950s and 1960s, many families were still living in traditional dwellings, and practising a



hunting and gathering lifestyle. While the switch to modern housing was instantaneous, the adoption of a wage-labour economy and the social and ideological relations it entails has been much slower to take hold. This may be a product of the sparse and sporadic ("boom and bust") nature of wage-labour jobs in the Canadian North. Alternatively, it may also reflect the strength and vitality of traditional Inuit relations of production. Thus, because the economic, social, and ideological relations of Inuit in the 1950s, 1960s, and 1970s were different than those of "Qallunaat society," Inuit did not "use" modern housing in the way it had been intended to be used. Hence, from the perspective of Euro-Canadian architects and government officials, Inuit were the "unsympathetic users" of modern prefabricated housing (after Gutman, 1976).

### SUMMARY AND CONCLUSIONS

By treating the habitat as "artifact" rather than as "container of space," anthropologists and archaeologists have obscured the social meaning embedded in the patterning of space. By operationalizing the ideas of Hillier and Hanson (1984), I have suggested that the modern, prefabricated house constituted an "alien" spatial environment to Inuit/Eskimo people in the 1950s, 1960s, and 1970s. The encounter rates generated by the spatial arrangements within these houses were representative of the societal relations of Euro-Canadian society, rather than those of a pre-industrial hunter-gatherer society on the eve of rapid acculturation. Consequently, the integration of the kitchen space—the locus of female status and control in the traditional Inuit household—with other spaces in the system may have contributed to the subversion of the authority of Inuit women in both the nuclear family and the community. In addition, the inclusion of new spaces with greater segregation (bedrooms) may have necessitated the development and implementation of new social strategies for coping with delays in the resolution of interpersonal conflict. Such strategies may have involved the restructuring and formalization of authority and discipline within the Inuit household.

Initially, the efforts of the Canadian government to transform the built environments of Inuit in the Canadian Arctic were met with some resistance. This resistance took the form of using spaces in ways that defeated the goals of Euro-Canadian designers: for example, butchering seals in living areas, storing seal meat in bathtubs, using dining room tables as work benches, and repairing snow machines indoors (Thomas and Thompson, 1972; Gutman, 1976). Today, with the settlement of land claims such as the Inuvialuit Final Agreement of 1984, and the establishment of Nunavut, the economic, social, and ideological relations of modern Inuit more closely resemble those of mainstream white society than they did several decades ago. Many more Inuit women now engage in wage-labour jobs, have been trained as teachers and health care professionals, and play important roles in Inuit politics (Graeme, 1989). As a result, the Inuit may no longer be as "unsympathetic" in their uses of modern housing

as they once were. In modern Inuit communities, however, one might expect that the organization and use of built space would vary with household composition. For example, young families might use space differently than older, more traditionally minded individuals.

Inter-societal contact often involves a dominant society imposing its technology/economy and cultural values on a submissive one. As an example, the reconquest of New Mexico by the Spanish in 1692 resulted in a period of close contact between Puebloan refugees and the Navajo (Jett and Spencer, 1981). In the Gobernador region of northern New Mexico, the Navajo abandoned the traditional hogan, and began to construct rectilinear masonry *pueblitos*. These structures were, no doubt, introduced by Puebloan groups, and constituted a built environment foreign to the Navajo. That these new structures may have been forced upon the Navajo is suggested by the introduction of the Blessingway rite in Navajo religion, following the return of the Puebloans back to their Rio Grande pueblos. The Blessingway rite forbade the construction of masonry *pueblitos* among the Navajo, and confirmed the conical forked-pole hogan as the cornerstone of Navajo social and spiritual life (Jett and Spencer, 1981).

Studies such as the one proposed in this paper imply that ethnoarchaeology in the North has the potential to 1) provide archaeology and anthropology with a greater appreciation of the dynamic relationship that exists between culture change and the changing nature of the built environment, and 2) educate and challenge Euro-Canadian architects and planners to design and construct dwellings that strengthen rather than diminish the values, customs, traditions, and social relations of contemporary Inuit families.

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